

THE TOAST MASTERS

Tim Jenison and Paul Montgomery want to make the tools of production affordable to every videographer.

Who, by now, has not heard of the Video Toaster? Manufactured by NewTek, of Topeka KS, this innovative product with the whimsical name consists of an expansion board and several floppy disks that can turn the Commodore Amiga personal computer into a video switcher, DVE, paint device, character generator, 3-D system, and frame grabber/store. Although publicity for the Toaster has been widespread, video professionals at all levels are still assessing just what this product really offers them.

In a company that dislikes official titles, NewTek principals Tim Jenison and Paul Montgomery are best described as president/founder and CEO, respectively. Both have had a fascination with personal computers and portable video equipment since their teens, when these technologies first became accessible in the form of PC kits and Sony Portapaks. Today that interest has given birth to what many are calling a revolutionary computer/video product. VIDEOGRAPHY Contributing Editor Craig Birkmaier interviewed Jenison and Montgomery to find out more about NewTek and the Video Toaster.

VIDEOGRAPHY: *What was NewTek's pre-Video Toaster history?*

JENISON: DigiView was our first product, and the reason for NewTek's existence when it started, four years ago. DigiView is a slow-scan video digitizer that enables a user to connect a camera to the Amiga and scan in color photographs. It became an instant best-seller and NewTek was profitable about two months before we opened our doors. The product was so successful that some said it was the reason for the majority of Amiga sales. It demonstrates a capability of the Amiga that no other PC at the time had. It took advantage of the Amiga's display system, which at that time was unique. You could



NewTek's Montgomery (left) and Jenison.

really get a good-looking color photograph on the screen.

About two years after DigiView we introduced a companion product, DigiPaint, which works in the specialized hold-and-modify (HAM) graphics mode on the Amiga. This is the mode that lets you display 4,000 colors at once. With software tricks we were able to display more than 4,000 colors. Those were NewTek's roots, but while we sold DigiView and DigiPaint we've been working on the Video Toaster in the back room.

MONTGOMERY: Let me point out that NewTek was not started with any venture capital, nor were large bank loans ever necessary. DigiView and DigiPaint were very successful. Profits were put back into the company and funded millions of dollars of Toaster R&D without having to go out and sell the company. I think that was important because no venture capital firm would ever have allowed us to develop such an elaborate product as the Toaster on the Amiga. They would have said "It should be called the XMP 4000 and sold for \$8,000."

There are no investors in NewTek. It's privately held and we are the people in charge.

VIDEOGRAPHY: *I've heard rumors that the original concept for the Toaster was for the Macintosh environment.*

JENISON: That's only partially true. After the Toaster was begun, we investigated the possibility of porting it to the Macintosh. Although we're all Mac enthusiasts and have used them for years—

MONTGOMERY: We are Apple developers, as well.

JENISON: —we did a feasibility study on it and found we would have had to design a lot more circuitry into the Toaster card itself. As it is, the Toaster's electronics are really a layer on top of Amiga's display system. So we can take advantage of its graphics co-processors, what's called the "blitter" and the "copper," which are custom chips. The Amiga went through millions of dollars of development on those chips to make them part of a low-cost home computer. We were able to capitalize on that. Without the Amiga and its co-processors the price might have been \$2,000-\$3,000. Things have changed a little bit recently, but at that time a Mac II that could theoretically handle the Toaster would be \$5,000-\$6,000. That and the Toaster would have been in the \$10,000 range. We wanted something far lower in cost.

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VIDEOGRAPHY: *This question is for both of you. Without getting into the specific capabilities, describe the Toaster and its purpose.*

JENISON: To grossly oversimplify, it's to perform the functions of a postproduction suite or a TV control room. All the capabilities of a network-level production environment are incorporated to some level in the Toaster. That includes a switcher, DVE, character generator, paint and 3-D animation system.

MONTGOMERY: When the Toaster was being designed we didn't look at the features we were adding in any way similar to how a high-end company would. A high-end company would say "We have a really good 3-D rendering package, and that kind of software sells for \$10,000 today; we could sell ours for \$5,000, and with its similar features we could take over the market."

We looked at things from the view of users who really aren't that familiar with this gear and said, "What is this user going to need to do the intro to *Entertainment Tonight* or to look like ESPN?" Toaster features were added to help that user achieve those results instead of looking at what price features were sold for, how things were sold, and lack of integration in the market. We put ourselves in the shoes of the videographer who loves the idea of video but doesn't want

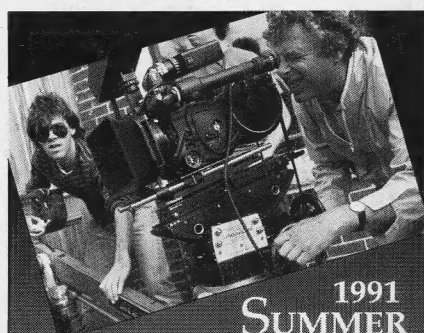
to work for a post house, who can't afford the equipment on his own but has some experience with it. Someone who would never buy this equipment otherwise.

VIDEOGRAPHY: *There are reports of the Toaster being used at all levels of the video business and figures of more than 10,000 units sold. Can you characterize your typical user?*

MONTGOMERY: It's amazing how diverse our users are. They can be anywhere from network level—there were Toasters used in Saudi Arabia during the war—to education, to corporate America and throughout the industrial market, to the professional-event videographer who wants his clients' wedding tapes to look like *Dynasty*. This is best illustrated by the fact that we have been a hit at shows ranging from the Consumer Electronics Show to SIGGRAPH, Comdex to NAB, and at MacWorld. Those are very different shows with very different audiences.

VIDEOGRAPHY: *NewTek emphasizes that the Toaster is a broadcast-quality product, yet the mass market for it may have little, if anything, to do with broadcasting. Why this emphasis?*

JENISON: Because maintaining broadcast standards is a good idea. Anything that degrades the video signal is bad and you can never recover any loss once it's introduced. To ensure the best performance we wanted to make the video quality as



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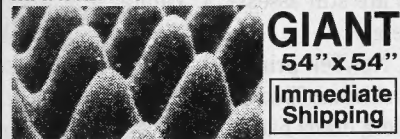
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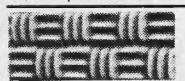
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good as possible. We also wanted to enable television stations to use it, because there are lots of places in that environment where the Toaster could be used.

Obviously, stations already have production and master control switchers, so they're not likely to rip them out and stick in Toasters. You could start a TV station and base it around a Toaster as your master control switcher, but there are many other places in a station where you can use it. So we said "Let's look at FCC and RS-170-A specs to make sure we're okay with those." Even though there are fewer than 2,000 TV stations, we feel it's important that the Toaster is good enough for them to use.

MONTGOMERY: A lot of people are using the Toaster as just a still store. They're also using it as a 3-D rendering station, and most TV stations can't afford a 3-D setup with Toaster quality. They're using it as their paint system. They're using it in newsrooms for editing and now they can have digital video effects. Even in Topeka here we're finding the Toaster being used at different stations for different things. People are lining up to use it, and it's cheap enough to justify buying more than one.

VIDEOGRAPHY: *Many broadcast-level Toaster owners are using it as an offline system to model work planned for online facilities. They will put together visual storyboards on VHS or 3/4" tape, and then use it as an online "instruction kit," if you will. Is anyone actually putting the Toaster on the air?*

JENISON: We are finding it's used a lot at medium to small market television stations to do weather maps and other graphics applications. The Toaster is actually far more sophisticated than an awful lot of what's being used by the average TV station in the U.S. right now.

VIDEOGRAPHY: *Let's get into some specifics. Many customers have learned that full professional utilization of the Toaster's capabilities requires significant hardware expense beyond the relatively low cost of the Toaster and an Amiga 2500. What does it really take to build a serious Toaster studio to do professional video?*

MONTGOMERY: That's a pretty commonly asked question, and one recent review said "The Toaster's cheap and great, but you need to spend \$2,500 just to use it." That's taking into account a lot of things that really aren't true. One of them is time base correction. For years TBCs meant \$5,000 per channel—period. That was how much they cost. That's not the case anymore. There are many companies about to release TBCs for the Toaster for under \$1,000 a channel. One of them is already shipping, and it works great.

Cameras are another thing. Today's consumer camcorders are approaching the quality of broadcast cameras of 10 years ago. We recommend S-VHS and Hi-8 camcorders for really professional results. There are some excellent systems in that price range to do either A/B-roll editing or what we call pseudo-A/B-roll editing, which gives you that professional network look. We can piece together a complete system, including the Toaster (which does not need to run on an

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Amiga 2500, but can run on a 2000) and the necessary RAM and a hard disk for \$3,995. That's the system we're going to be promoting. You can also spend an extra \$1,000 for an 68030 card to give you more horsepower. With that price in mind, you can piece together a pretty professional system for \$10,000-\$12,000, including Toaster and one or two genlocked cameras.

VIDEOGRAPHY: *By "pseudo-A/B-roll editing" I assume you mean using the computer to buffer the transitions between two live sources?*

JENISON: Yes. A pseudo-A/B-roll system that may be one of the lowest-cost ways to do this would be a Sony EVO 9700. It's got the two decks built in—the player and the recorder—an edit controller, and a character generator, which we don't use in this system. It has a GPI trigger output that's actually labeled *pause* on the back panel. You route that GPI trigger to the Toaster and basically all you have on your desk is the Toaster and the EVO 9700, which are approximately the same size—like two beige shoeboxes stacked on top of each other. You probably also have two monitors, and that's it. So that's around \$10,000 or maybe just a bit more.

MONTGOMERY: It has a TBC built into the deck already.

JENISON: Right. A lot of our sales are going to cuts-only editing systems, which is probably 90 percent of the video production facilities in the country. And where before they were only able to do cuts-only editing, they're now able to do these pseudo-A/B-roll tricks, have the character generator, paint, digital transitions, and all the things that basically give it a broadcast look. If you already have a cuts-only system, it's as simple as plunking down \$4,000 for a Toaster and you're in a whole new league.

VIDEOGRAPHY: *What would it cost to put together a true A/B-roll system, with two TBCs and the necessary enhancements to the system in terms of accelerator cards, additional memory, a larger capacity disk drive to be able to store off some stills and 3-D work?*

JENISON: You've just hit upon a common misconception, which is that you need more than 50-meg hard drive. The \$3,995 price that I described includes all the RAM you need and a large hard drive and everything to do the basic stuff. That's what I have on my desk; I use the Toaster constantly and it works fine that way. So start with \$4,000.

If you're going to be using LightWave 3D a lot, I would recommend the 68030 card. So then you add \$1,000 to the system. The decks that we recommend usually have TBCs built in. You can use, say, the Panasonic AG-1960 editing VCR; add a couple of TBC cards and you can do some pretty neat stuff. For true A/B-roll editing, we look at the Hitachi VL-S100 or the Panasonic AG-7750 as the way to do it. And then there's the controller. One is the AmiLink, from RGB Computer & Video, Palm Beach Gardens FL. AmiLink is a Toaster-compatible A/B-roll editor, with the necessary modules for that. If you're talking about full-blown S-VHS A/B roll editing it's around \$15,000-18,000 for all the gear you're going to need, including the VTRs and the complete Toaster

system.

VIDEOGRAPHY: *Can you describe your vision of how professionals and consumers will utilize integrated computer video systems such as the Toaster in the last half of this decade?*

MONTGOMERY: I see the Toaster as a milestone product in that it's the first time something with professional specifications and an integrated approach has been available. It is now possible for people to afford the equipment. In the last half of this decade people will use desktop video products like the Toaster much the same way as they use desktop publishing products today. And people with camcorders will do more than record their vacations.

Today every interest you can imagine has magazines, but not videotapes. In the coming years it will be possible for anyone to make a tape about their model train club or their kids' birthdays. On a more professional level corporations will be able to train more people with quality video that is entertaining and professionally put together.

JENISON: Ten years is a long, long time in computer technology. But I think a few things are very clear. The problem of storage will go away, as will the problem of communications bandwidth. In other words, you won't run out of disk space on your home computer if you sit there and let your video camera roll and record live video. And if you want to call somebody up and modem that same information to them the communication speed won't be a problem.

Computers will be able to store and communicate video and information. The trick for us at NewTek and other companies in this field is to stay on top of it and in the league. We're quite a way ahead of those trying to do video production with PCs and we'd like to still be ahead when real-time HDTV is a reality later in this decade.

MONTGOMERY: Our target when designing the Toaster was that average videographers would use it to get the professional look they want. The Toaster lets one person control his or her own vision on videotape. Todd Rundgren did his new VH-1 video, *Change Myself* [see article, this issue], with Toasters in his own home and he controlled his vision, as other people are also doing with projects under development. When you look at Rundgren's video it doesn't look like it was done on a personal computer, but on any high-end 3-D graphics system you'd see on television.

There are desktop video studios being set up in people's garages and basements that are turning out really incredible stuff that couldn't have been done before the Toaster. It would have been just too expensive. They couldn't afford it. When you make something cheap, people use it. We are finding a tremendous market for the Toaster—far larger than we had anticipated when we started. □

For more information on NewTek's Video Toaster, circle number 15 on the Free Literature Card in this issue.